

The lithium existence form in a lithium ore deposit

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In the ore deposit containing lithium, Spodumene, Petalite, Lepidolite, etc. are known as a lithium mineral, but these minerals are not contained in the lithium ore deposit examined this time. So, in this research, the result analyzed using XRD and SEM+EDS is released.

In the ore deposit containing lithium in this time, it roughly divides of a white portion and a portion of ashes green. From the result of XRD, it mainly becomes a white portion from Searlesite($\text{NaBSiO}_5(\text{OH})_2$), Calcite(CaCO_3), and Orthoclase(KAlSi_3O_8), and the mineral containing lithium is not shown. On the other hand into the portion of ashes green, Calcite(CaCO_3), Orthoclase(KAlSi_3O_8), Illite($\text{K}(\text{Al,Mg,Fe})_2(\text{Si,Al})_4\text{O}_{10}$), Rozenite($\text{FeSO}_4\cdot 4\text{H}_2\text{O}$), and Cryolite($\text{Li}_3\text{Na}_3\text{Al}_2\text{F}_{12}$) are contained was obtained. Since the peak of various minerals had appeared, it could not declare that Cryolite existed clearly, but it was suggested that Cryolite may exist as a lithium content mineral.

Next, from the results of SEM+EDS analysis, in the white part, Calcite and Orthoclase were contained at about 10-100 micrometers, and Searlesite existed in it at those circumferences. And in the green gray part, Orthoclase, Calcite, Illite, Rozenite were contained at about 10-30 micrometers, and the particle with a size of 1 micrometer or less existed in those circumferences. Although measurement of Li was not completed in analysis of EDS, it was checked that F is contained in the analysis of these microscopic particles.

From the above result, it was surmised that the lithium content mineral examined this time was Cryolite.

Keywords: lithium, ore deposit, mineral